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United States Department of Agriculture,

BUREAU OF CHEMISTRY.

PURITY OF FOOD PRODUCTS.

Tentative draft submitted as a basis for suggestion, November 19, 1906.

[Prepared by the Committee on Food Standards, Association of Official Agricultural Chemists.]

PRINCIPLES ON WHICH THE STANDARDS ARE BASED.

The general considerations which have guided the committee in preparing the standards for food products are the following:

1. The standards are express in the form of definitions, with or without accompanying specifications of limit in composition.
2. The main classes of food articles are defined before the subordinate classes are considered.
3. The definitions are so framed as to exclude from the articles defined substances not included in the definitions.
4. The definitions include, where possible, those qualities which make the articles described wholesome for human food.
5. A term defined in any of the several schedules has the same meaning wherever else it is used in this report.
6. The names of food products herein defined usually agree with existing American trade or manufacturing usage; but where such usage is not clearly established or where trade names confuse two or more articles for which specific designations are desirable, preference is given to one of the several trade names applied.
7. Standards are based upon data representing materials produced under American conditions and manufactured by American processes or representing such varieties of foreign articles as are chiefly imported for American use.
8. The standards fixt are such that a departure of the articles to which they apply, above the maximum or below the minimum limit prescribed, is evidence that such articles are of inferior or abnormal quality.
9. The limits fixt as standard are not necessarily the extremes authentically recorded for the article in question, because such extremes are commonly due to abnormal conditions of production and are usually accompanied by marks of inferiority or abnormality readily perceived by the producer or manufacturer.

DEFINITIONS.

I. ANIMAL PRODUCTS.

A. MEATS AND THE PRINCIPAL MEAT PRODUCTS.

c. MEAT EXTRACTS, MEAT PEPTONES, GELATIN, ETC.

1. *Meat extract* is the product obtained by extracting meat with boiling water and concentrating the liquid portion by evaporation after the removal of fat, and contains not less than seventy-five (75) per cent of total solids of which not over twenty-seven (27) per cent is ash, and not over twelve (12) per cent is sodium chlorid (calculated from the total chlorin present), not over six-tenths (0.6) per cent is fat, and not less than seven (7) per cent is nitrogen. The nitrogenous compounds contain not less than forty (40) per cent of meat bases and not less than ten (10) per cent of kreatin.

2. *Fluid meat extract* is identical with meat extract except that it is concentrated to a lower degree and contains not more than seventy-five (75) and not less than fifty (50) per cent of total solids.

3. *Meat juice* is the fluid portion of muscle fiber, obtained by pressure or otherwise, and may be concentrated by evaporation at a temperature below the coagulating point of the soluble proteids. The solids contain not more than fifteen (15) per cent of ash, not more than two and five-tenths (2.5) per cent of sodium chlorid (calculated from the total chlorin present), not more than four (4) nor less than (2) per cent of phosphoric acid (P_2O_5), and not less than twelve (12) per cent of nitrogen. The nitrogenous bodies contain not less than thirty-five (35) per cent of coagulable proteids and not more than forty (40) per cent of meat bases.

4. *Peptones* are products prepared by the digestion of proteid material by means of enzymes or otherwise, and contain not less than ninety (90) per cent of proteoses and peptones.

5. *Gelatin (edible gelatin)* is the purified, dried, inodorous product of the hydrolysis, by treatment with boiling water, of certain tissues, as skin, ligaments, and bones, from sound animals, and contains not more than two (2) per cent of ash and not less than fifteen (15) per cent of nitrogen.

F. BEVERAGES.

a. FRUIT JUICES—FRESH, SWEET, AND FERMENTED.

1. *Fresh Fruit Juices.*

1. *Fresh fruit juices* are the clean unfermented liquid products obtained by the first pressing of fresh, ripe fruits, and correspond in name to the fruits from which they are obtained.

2. *Apple juice, apple must, sweet cider*, is the fresh fruit juice obtained from apples, the fruit of *Pyrus malus*, has a specific gravity ($15^{\circ} C.$) not less than 1.0425 nor greater than 1.0700; and contains in one hundred (100) cubic centimeters not less than six (6) grains, and not more than twenty (20) grams of total sugars, in terms of reducing sugars, not less than twenty-four (24) centigrams nor more than sixty (60) centigrams of apple ash, which contains not less than fifty (50) per cent of potassium carbonate.

3. *Grape juice, grape must*, is the fresh fruit juice obtained from grapes (*Vitis labrusca* Linn., *V. aestivalis* Michx., *V. vinifera* Linn., *V. riparia* Michx.,

V. rotundifolia Michx., and other *Vitis* species), has a specific gravity (15° C.) not less than 1.0410 and not exceeding 1.1250; and contains in one hundred (100) cubic centimeters, not less than seven (7) grams nor more than twenty-eight (28) grams of total sugars, in terms of reducing sugars, not less than twenty (20) centigrams and not more than fifty-five (55) centigrams of grape ash, and not less than fifteen (15) milligrams nor more than seventy (70) milligrams of phosphoric acid (P_2O_5).

4. *Lemon juice* is the fresh fruit juice obtained from lemon, the fruit of *Citrus limonum* Risso, has a specific gravity (20° C.) not less than 1.030 and not greater than 1.040; and contains not less than ten (10) per cent of solids, and not less than seven (7) per cent of citric acid.

5. *Pear juice, pear must, sweet perry*, is the fresh fruit juice obtained from pears, the fruit of *Pyrus communis* or *P. sinensis*.

2. Sterilized Fruit Juices.

1. *Sterilized fruit juices* are the products obtained by heating fresh fruit juices at a temperature sufficiently high and for a time sufficiently long to kill all the organisms present, and correspond in name to the fruits from which they are obtained.

3. Concentrated Fruit Juices.

1. *Concentrated fruit juices* are clean, sound fruit juices from which a considerable portion of the water has been evaporated, and correspond in name to the fruits from which they are obtained.

4. Sweet Fruit Juices, Sweetened Fruit Juices, Fruit Sirups.

1. *Sweet fruit juices, sweetened fruit juices, fruit sirups*, are the products obtained by adding sugar (sucrose) to fresh fruit juices, and correspond in name to the fruits from which they are obtained.

2. *Sterilized fruit sirups* are the products obtained by the addition of sugar (sucrose) to fresh fruit juices and heating them at a temperature sufficiently high and for a time sufficiently long to kill all the organisms present, and correspond in name to the fruits from which they are obtained.

5. Fermented Fruit Juices.

9. *Cider, hard cider*, is the product made by the normal alcoholic fermentation of apple juice, and the usual cellar treatment, and contains not more than seven (7) per cent by volume of alcohol, and, in one hundred (100) cubic centimeters of the cider, not less than two (2) grams nor more than twelve (12) grams of solids, not more than eight (8) grams of sugars, in terms of reducing sugars, and not less than twenty (20) centigrams nor more than forty (40) centigrams of cider ash.

10. *Sparkling cider, champagne cider*, is cider in which the after part of the fermentation is completed in closed containers, with or without the addition of cider or sugar liquor, and contains, in one hundred (100) cubic centimeters, not less than twenty (20) centigrams of cider ash.

c. MALT LIQUORS.

1. *Malt liquor* is a beverage made by the alcoholic fermentation of an infusion, in potable water, of barley malt and hops, with or without unmalted cereals.

2. *Beer* is a malt liquor produced by bottom fermentation, and contains, in one hundred (100) cubic centimeters, at 20° C., not less than five (5) grams of extractive matters and sixteen one-hundredths (0.16) gram of ash, chiefly potassium phosphate, and not less than two and twenty-five hundredths (2.25) grams of alcohol.

3. *Lager beer, stored beer*, is beer which has been stored in casks for a period of at least three months, and contains, in one hundred (100) cubic centimeters, at 20° C., not less than five (5) grams of extractive matters and sixteen one-hundredths (0.16) gram of ash, chiefly potassium phosphate, and not less than two and fifty one-hundredths (2.50) grams of alcohol.

4. *Malt beer* is beer made of an infusion, in potable water, of barley malt and hops, and contains, in one hundred (100) cubic centimeters, at 20° C., not less than five (5) grams of extractive matter, nor less than two-tenths (0.2) gram of ash, chiefly potassium phosphate, nor less than two and twenty-five hundredths (2.25) grams of alcohol, nor less than four-tenths (0.4) gram of crude protein (nitrogen \times 6.25).

5. *Ale* is a malt liquor produced by top fermentation, and contains, in one hundred (100) cubic centimeters, at 20° C., not less than two and seventy-five hundredths (2.75) grams of alcohol nor less than five (5) grams of extract.

6. *Porter* and *stout* are varieties of ale colored by the addition of highly roasted malt to the infusion.

d. SPIRITUOUS LIQUORS.

1. *Distilled spirit* is the distillate obtained from a fermented mash of cereals, molasses, sugars, fruits, or other starch or sugar-bearing substances, and contains all the condensed products of the fermentation volatile at the usual temperature of distillation.

2. *Rectified spirit* is distilled spirit which at the time of or subsequent to distillation is subjected to a rectifying process by means of which a part of the volatile products of the distillation is separated from the ethyl alcohol therein.

3. *Alcohol, cologne spirit, neutral spirit, velvet spirit, or silent spirit* is distilled spirit from which all, or nearly all, its constituents are separated except ethyl alcohol and water, and contains not less than ninety-four and nine-tenths (94.9) per cent (189.8 proof) by volume of ethyl alcohol.

4. *New whisky* is the distilled spirit from the properly fermented mash of malted cereals or cereals the starch of which has been hydrolyzed by malt, is of an alcoholic strength corresponding to the excise laws of the various countries in which it is made, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

5. *Whisky (potable whisky)* is new whisky which has been stored in wood for not less than four (4) years and mixed only with pure water at the time of its preparation for consumption, and contains, unless otherwise prescribed by law, not less than forty-five (45) per cent of ethyl alcohol by volume, and the relative quantities of secondary products to ethyl alcohol corresponding to the varieties of whisky under six (6) to fifteen (15), inclusive.

6. *Rye whisky* is whisky in the manufacture of which rye is the principal cereal used, and contains not less than two hundred (200) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than forty (40) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more

than eighty-five (85) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

7. *Bourbon whisky* is whisky in which Indian corn (maize) is the principal cereal used, and contains not less than two hundred (200) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than forty (40) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more than eighty-five (85) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

8. *Corn whisky* is whisky made exclusively from maize (Indian corn), the starch of which may have been converted into starch by malting or by the action of barley malt, and contains the proportions of the various ingredients specified for bourbon whisky.

9. *Blended whisky* is a mixture of two or more whiskies, and contains the relative quantities of secondary products to ethyl alcohol of the varieties of whisky forming the blend.

10. *Rectified new whisky* is new whisky deprived of a part of its secondary volatile products, and contains not less than sixty (60) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than forty (40) grams of fusel oil (higher alcohols as amylic), not more than eight (8) grams of aldehydes, not less than five (5) grams of ethers (as acetic ether), not less than one (1) gram of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent of ethyl alcohol by volume).

11. *Rectified whisky* is rectified new whisky, stored in wood not less than three (3) years, except where otherwise prescribed by law, and contains not less than one hundred (100) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than fifty (50) grams of fusel oil (higher alcohols as amylic), not more than ten (10) grams of aldehydes, not less than twenty (20) grams of ethers (as acetic ether), not less than fifteen (15) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

12. *Scotch new whisky* is whisky made in Scotland solely from barley malt in the drying of which over burning peat a smoky or peaty flavor is imparted to the product, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary product of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

13. *Scotch whisky* is Scotch new whisky which has been stored in wood for not less than four (4) years and mixt only with pure water at the time of its preparation for consumption, and contains not less than one hundred and fifty (150) nor more than four hundred and fifty (450) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehyde, not less than twenty-five (25) nor more than one hundred and twenty-five (125) grams of ethers (as acetic ether), not less than ten (10) nor more than forty (40)

grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

14. *Irish new whisky* is whisky made in Ireland either from barley malt or malt and unmalted barley or other cereals, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than ninety (90) nor more than two hundred and twenty-five (225) grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than fifteen (15) nor more than one hundred (100) grams of ethers (as acetic ether), not less than two (2) nor more than twenty-five (25) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

15. *Irish whisky* is Irish new whisky which has been stored in wood for not less than four (4) years and mixt only with pure water at the time of its preparation for consumption, and contains not less than one hundred and fifty (150) nor more than four hundred and fifty (450) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than one hundred (100) nor more than two hundred and fifty (250) grams of fusel oil (higher alcohols as amylic), not more than twenty-five (25) grams of aldehydes, not less than twenty-five (25) nor more than one hundred and twenty-five (125) grams of ethers (as acetic ether), not less than ten (10) nor more than forty (40) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

16. *New rum* is distilled spirit made from the fermented juice of the sugar cane, the massecuite made therefrom, molasses from the massecuite or any intermediate product save sugar, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than sixty (60) nor more than one hundred and fifty (150) grams of fusel oil (higher alcohols as amylic), not more than thirty (30) grams of aldehydes, not less than thirty (30) nor more than one hundred (100) grams of ethers (as acetic ether), not less than twenty (20) nor more than fifty (50) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

17. *Rum* is new rum stored not less than four (4) years in wood, and contains not less than one hundred and seventy-five (175) nor more than five hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than eighty (80) nor more than two hundred (200) grams of fusel oil (higher alcohols as amylic), not more than forty (40) grams of aldehydes, not less than fifty (50) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty-five (35) nor more than one hundred (100) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

18. *New brandy* is a distilled spirit made from sound potable wine, and contains not less than one hundred and twenty-five (125) nor more than three hundred and fifty (350) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than seventy (70) nor more than one hundred and fifty grams of fusel oil (higher alcohols as amylic), not more than twenty (20) grams of aldehydes, not less than thirty (30) nor more than one hundred (100) grams of ethers (as acetic ether), not less than five (5) nor more than twenty (20) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

19. *Brandy* is new brandy stored in wood for not less than four (4) years, and contains not less than one hundred and fifty (150) nor more than five

hundred (500) grams of the secondary products of distillation congeneric with ethyl alcohol, not less than eighty (80) nor more than two hundred (200) grams of fusel oil (higher alcohols as amylic), not more than thirty (30) grams of aldehydes, not less than thirty-five (35) nor more than one hundred and fifty (150) grams of ethers (as acetic ether), not less than thirty (30) nor more than one hundred (100) grams of volatile acids (as acetic) to one hundred (100) liters of proof ethyl alcohol (50 per cent ethyl alcohol by volume).

20. *Cognac* is brandy prepared in the departments of the Charente, France, from pure, sound wine produced in those departments.



